Indian Maritime University

(A Central University, Govt of India)

End Semester Examinations– June 2023

Programme Name: B Tech (ME)

Semester: VII

Subject Code: UG11T3704

Subject Name: ADVANCED MARINE TECHNOLOGY

Date: 16.06.2023	Max Marks: 70
Duration: 03 Hrs	Pass Marks: 35

General Instructions

(i) All Sections (A, B & C) are to be attempted.
(ii) Options, if any, are specified in respective section.

QP setters to specify the following as applicable:-

(iii) Tables (Steam/Log/Nautical Almanac etc) that can be used.
(iv) Chart Work Booklets to be used.
(v) Any other tables/charts to be used.

Section A

Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer as applicable.

1. During Main engine manoeuvring, if engine reached 'Firing RPM'
(A) Engine control change to 'Blocked' mode
(B) Engine control stops the fuel supply to units
(C) Air starting valve opens to supply additional air
(D) Engine control allow the fuel supply to Units

2. If Main propulsion engine slowdown activates
(A) Engine speed reaches to minimum engine RPM
(B) Engine speed reduces 10RPM less than running RPM
(C) Engine speed reaches to slow RPM as per telegraph setting
(D) Engine speed reaches to astern direction

3. In an oil tanker, if cargo tank pressure increases
(A) PV breaker acts (B) PV valve responses
(C) High pressure alarm sounds (D) All of the above

4. In an independent Type-C gas tankers construction required
(A) Complete secondary barrier (B) No secondary Barrier
(C) Partial secondary barrier (D)None of the above

5. In a Gas tanker Airlock doors should be Self-closing and there must not be any hook or other device by which they could be held open. There should be minimum distance of at least_____ between both doors.
(A) 0.5 meter (B) 1.0 meter (C) 1.5 meter (D) 2.0 meter

6. To detect the fire in the cargo holds of bulk carrier, fire sensors are normally mounted in
(A) top of the cargo hold (B)In Engine Room (C) In the bridge (D) Master's Cabin

7. The below is one principle on which Oxygen sensors functions
(A)Corrosive property of Oxygen (B) Para magnetism of Oxygen
(C) flammable property of oxygen (D) None of the above

8. The below method is used to confirm intact of the seals in FRAMO pumps
(A) Cofferdam purging (B) cargo tank purging (C) Ballast tank purging
(D) Cargo line purging

9. Common rail pressure for fuel oil in RT Flex engines is maintained at -
a. 100 bar
b. 200 bar
c. 1000 bar
d. 450 bar

10. The Following one method is used for NOx reduction techniques
(A) Scrubber (B) Use of LSFO (C) SCR (D) All of the above

Section B

Five Questions of 02 Marks each

11. In RO-RO vessel how cargo is secured?
12. Why Glycol used in LPG Re-Liquefaction system
13. List the hazards associated with chemical carrier
14. Classify different types of oil Tankers based on its cargo carriage
15. Explain the term condition monitoring with one on-board application in intelligent engines.

Section C

Seven Questions of 10 Marks each of which any 05 questions to be answered.

16. (A) How Emergency operation of main propulsion engine is performed? Explain in details (6 marks)
(B) Describe the dead-man Alarm in Engine Room (4 marks)
17. (A) Draw and explain Automatic unloading system functions onboard a crude oil tanker (5 marks)

(B) How fixed gas detection system for the pump room is functions (5 marks)

18. (A) Draw and explain the operation of Deep well pumps used for cargo operation in Gas tanker. (7 marks)

(B) Differentiate Gaztransport membrane system from Technigaz system.(3 marks)

19. Describe in detail about tank cleaning procedures practiced in chemical tankers (10 marks)

20. How boil-off LNG gas used in main propulsion Engine (10 marks)

21. (A) In RO-RO vessel, How cargo is loaded and unloaded? (4 marks)

(B) What is ESP? Explain the procedure followed as per ESP (6 marks)

22. (A) What is SEEMP? (3 marks)

(B) What does SEEMP contained? Explain them in detail. (7 marks)